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# **Structural Change or Social Fluidity? Examining Intergenerational Mobility in Education in India**

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# Structural Change or Social Fluidity?

## Examining Intergenerational Mobility in Education in India

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*Capability formation through education is crucial in a competitive world to reap so called demographic dividend. Parental influence on children's educational level is a reality that often hinders such progress. In a diverse society like India it is also important to examine how social background influences intergenerational educational mobility and what part of observed mobility is due to structural changes in the society and what part is due to exchange of 'places' between people from different social strata or social fluidity. This paper uses current econometric techniques to explore these issues in Indian context over the last two decades.*

**Keywords:** Intergenerational Mobility; Education; Social Disparity; Exchange Mobility; Structural Mobility; India;

**JEL Classification:** I20; I21; J24; J62; J71; N35; O15;

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# Structural Change or Social Fluidity?

## Examining Intergenerational Mobility in Education in India

### Abstract

*Capability formation through education is crucial in a competitive world to reap so called demographic dividend. Parental influence on children's educational level is a reality that often hinders such progress. In a diverse society like India it is also important to examine how social background influences intergenerational educational mobility and what part of observed mobility is due to structural changes in the society and what part is due to exchange of 'places' between people from different social strata or social fluidity. This paper uses current econometric techniques to explore these issues in Indian context over the last two decades.*

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### I. INTRODUCTION :

Achieving a certain level of living and improving the standard is key to individual being as well as to society. And these goals of individual and society are obviously very much interdependent. We measure society's economic development as indicator of improvement of that standard in terms of growth and distributional aspect. Inequality in individual income, assets or occupational status among society work as a hindrance to realize that objective in general. On the other hand, with the modernisation of society and integration of economies the question of social fluidity is becoming essential aspect of development. Certainly the issue of disparity and its impact on individual present and future has a bearing on intergenerational mobility (Becker & Tomes, 1994). In India historically some groups are belonging to lower strata of society due to economic

and/or social discrimination leading to lower income and asset possession as well as capability formation. It is often found that backward social classes are excluded from the process of capability formation and income-earning opportunities due to various forms of discrimination. This exclusion and backwardness transcends the boundary of the current generation and spills over to successive generations as well. In the context of globalisation the issue of capability formation is crucial and also the question of equal opportunity in education is of paramount importance as only educational achievement can lead to skill formation and better livelihood opportunities for the hitherto lagging groups. Moreover, the demographic dividend that India is supposed to benefit from will surely turn into demographic nightmare if capability formation of the workforce is slow, uneven or inadequate. Under such circumstances it becomes imperative to understand the nature of parental impact on children's educational level as well as the role of social background in influencing the magnitude of the parental impact itself. High (low) parental impact would indicate lower (higher) intergenerational mobility. Also interesting would be to examine what part of observed mobility is due to structural changes in the society and what part is due to exchange of 'places' between people from different social strata or social fluidity. The present paper uses current econometric techniques to explore these issues in Indian context by estimating intergenerational mobility in education during the last two decades, separately for different social groups and then decomposing it into structural and exchange mobility to understand the pattern and source of mobility across generations and social strata.

## **II. CURRENT RESEARCH**

Internationally there is a substantial literature on intergenerational income and education and occupation mobility, mostly from developed countries [see Solon (1999) for a good review]. Researchers like Becker & Tomes (1979), Solon (1992), Bjorklund & Jantti (1997), Buron (1994), Couch & Lillard (1994), Eide & Showalter (1997), Mulligan (1997), Minicozzi (1997) have tried to find out intergenerational income elasticity for USA data [see Mazumder (2001) for a brief review]. Several different methodologies have been used by researchers and naturally the estimates vary considerably (see Table 1 for a comparative picture). Though any simplification is difficult, it is observed that mobility is higher in developed countries compared to underdeveloped ones. Black and Devereux (2010) in their vast review work discussed recent developments in intergenerational mobility in the past decade and comment that recent emphasis

is on causal relation and mechanism of transmission of intergenerational persistence in income level.

Surprisingly, this area has remained under-focussed in Indian economic research, one of the major reasons being absence of pan-generation data on income and allied factors. While there have been a handful of studies on intergenerational mobility in occupation or education in India [Driver (1962), Kumar et al (2002a, 2002b), Majumder (2010), Maitra and Sharma (2009), Ray & Majumder (2011), Motiram & Singh (2012), Emran & Shilpi (2012), Hnatkovska et al (2013)] practically none have tried to decompose the observed mobility into that due to structural factors and that due to enhanced social fluidity. The present paper is related to these works and also to those on disparity and discrimination [Borooah et al (2005), Takahiro (2007), Madheswaran & Attewell, (2007), Majumder (2010), Mukherjee & Majumder (2011)]. One major point of departure from the earlier studies, especially that by Hnatkovska et al (2013) is that it had clubbed the Scheduled Castes (SCs) and the Scheduled Tribes (STs) together, though evidence suggests that the condition of SCs are markedly different from that of the STs, both in terms of employment opportunities and income earned. Also, by clubbing the Other Backward Castes (OBCs) within the Non-SC/STs Hnatkovska's paper loses some appeal as one of the most important and fiercely debated policy decisions in recent Indian administration is extension of reservations to OBCs. In contrast the present paper breaks down the dataset into STs, SCs, OBCs, and Others to bring out the differences among these distinct social classes. In addition, Hnatkovska had considered the Head of Household as the *Father* and all children/grandchildren in the same household as *Sons*, which in our opinion is erroneous on two counts. First, in many cases the head of household is the current generation with his parents co-residing; and second, by putting children and grandchildren in the same bracket they have actually combined effect of two successive generations. We avoid that by considering all possible successive generation adult male pairs living in a household. Moreover by decomposing observed mobility into exchange and structural mobilities we venture into a territory that have remained so far uncharted in Indian context. This paper therefore fills a substantial void in existing literature and complements and improves upon the past studies on mobility.

### III. DATA AND METHODOLOGY

The study has used the National Sample Survey Office (NSSO) database on employment and unemployment (unit level records) for the 66<sup>th</sup> Round, pertaining to the year 2009-10 which is the culminating point of two decades of relatively high macroeconomic growth for India. As a contrast we have also presented results for the NSSO 50<sup>th</sup> round data for the year 1993-94, the beginning of the structural adjustment process in India and 61<sup>st</sup> round (2004). Our study therefore provides a comparative view of educational mobility at the beginning and at the end of a high growth period of Indian economy. Family records have been superimposed on personal records so as to obtain multi-generational data on education. Thereafter, the data has been processed to provide us with the necessary information on intergenerational mobility for different social classes. Since our database is at household level, this means that we have used only those pairs of data where both father-son live in the same household. Also, to allow for completion of formal education in Indian system, we have selected only those persons with age greater than 20 years as belonging to ‘*children*’ group. We have also used the educational level of father as the parental educational level. We admit that gender dimensions of this would also have been an interesting study but data constraints compel us to restrict our scope at present.

We are interested in examining how children’s education are related to parental standards. More specifically, we want to quantify the degree of intergenerational upward mobility in education. This would be given by the percentage of children moving to a higher educational class as compared to their parents. In literature this is done by following the *Transition/Mobility Matrix* approach or the *Regression Approach*. We have applied both the approaches in this paper.

To understand the source of mobility we have studied both the exchange and structural mobility computed from mobility table. Each 20+ person can have a  $ij$  pair associated with him/her where  $i$  refers to his own educational group and  $j$  represents his/her father’s educational level. The cells of the mobility table give the counts of persons that share each combination of  $i$  and  $j$ . The educational status of father has been treated as origin whereas status of child’s current education status is considered as destination. If  $i$  index the rows and  $j$  the columns, then  $f_{ij}$  is the numbers of persons with origin  $i$  and destination  $j$  i.e. it is the number of persons whose father’s educational status was  $i$ -th category whereas that of the child’s is  $j$ -th category. For  $i = j$ , origin and destination are same and represents the persons who retain their parental educational status and may be considered as static or immobile. On the other hand the upper right segment of the

mobility matrix represents upward mobility ( $j > i$ ), and the lower left part of the matrix represents downward mobility ( $j < i$ ).

Most commonly used mobility table is presented in two different ways – either through calculation of percentages distribution within rows or within columns of the table. Generally the term used for the row percentages is outflow percentage (or outflow matrix) and for the column percentage it is called inflow percentage (or inflow matrix). Outflow percentage gives the outflow of individuals of common origin i.e. distribution of destinations for each category of origin. Or in other words it gives the percentages of children whose parental educational groups are same but their destinations are different. On the other hand inflow percentages record the distribution of origin for each destination. It provides information of a particular destination class of children who are coming from different parental backgrounds. Intergenerational mobility measured by such mobility tables/ transitional matrix are result of two different types of flows or movement – *structural movement* and *exchange movement*.

*Structural mobility* defines changes in the positions of individuals which take place as a result of differences in proportions of socio economic status groups between two generations (Janicka and. Furdyna, 1977). It means overall shifts in the socio-economic status or increase in the opportunity available to all. Quantitative and qualitative alteration in socio economic structure is also the result of changing demand for various kinds of jobs and changes in required skills or qualifications. Structural mobility is the consequences of change in proportion of the various socio-occupational groups between the two generations. It is more a result of structural changes that has affected the society in general over time.

*Exchange mobility* denotes changes in position of individuals consisting of substitution as a result of vacating of position in specific socio-economic groups by those who do not inherit their father's position. Exchange mobility is defined as that portion of total change in educational status between two generations that is independent of structural change

The diagonal elements of the matrix represent no change in education/occupation status of children compare to their father. The sum of minimum of each cross pair ( $f_{ij}$  and  $f_{ji}$ ) represents the exchange of place of status between generations. This we call the matched pair. To get the figure of structural movement we deduct the sum of matched pair from figure of total upward mobility (sum of all the upper right cells of diagonal elements) This we call unmatched upward which represent structural mobility.

Observed Upward Mobility (OUM) = Exchange Upward Mobility (EUM) + Structural Upward Mobility (SUM)

EUM = OUM – SUM, and measures the fluidity observed in educational status between two generations that is independent of structural changes of the society.

At a policy level, one can think of SUM as results of growth of the society and EUM as results of policy interventions and affirmative actions.

Let us now explore the results in detail.

#### **IV. EDUCATIONAL ATTAINMENT IN INDIA**

The educational attainment levels of the people are substantially lower by international standards. According to our figures, which consider people of above 20 years age, even in 2009, more than 30 per cent of them were illiterate, and only about 28 per cent had completed secondary schooling. Among them only 8 per cent have passed higher secondary and another 8 per cent completed graduate level or above.

Within such low standards, the situations of the Excluded Castes are still worse. Among these classes, 35 per cent of the OBCs, 48 per cent of the STs, and 45 per cent of the SCs are illiterate, as compared to only 20 per cent for the Advanced Castes (Table 1). Education up to the secondary school level has been acquired by only about 14-25 per cent of the excluded class workers. Only 9–14 percent of persons from backward classes are able to complete higher secondary level of education, as compared to nearly 30 percent of persons from advanced class.

In 1993, 50 per cent of STs and 40 per cent of SCs were illiterate whereas in 2009 the corresponding figures are 48 per cent and 45 per cent respectively. On the other hand 17-21 percent of persons from backward classes (excluding OBCs) are able to attain at least 10 years of schooling in 1993 and the figures more or less are same in 2009.

If we consider different gender classes, it is observed that women are placed much below the men. In 2009 percentage of male worker who are illiterate is 23.5 whereas female illiteracy is much higher (44.3 per cent). On the other hand only 22 per cent of females completed secondary schooling whereas the same for male is much higher (35 per cent). In 1993 the gender gap in literacy rate was slightly higher than 2009 against the female.

Such gender disparity is more prominent among the backward communities relative to the advance caste. In 1993 the 67 per cent of females were illiterate among Tribal compared to 33



per cent of male. The gender gap for tribal groups reduced marginally in 2009. The similar trend is observed for SC community also. On the other hand the magnitude of disparity is much lower for advanced group compared to excluded groups and reduction in gender gap also marginally higher. Predictably at the upper educational levels female accomplishment is poorer compared to male and the disparity seems to be persistent over the period for all groups.

There are, however, disparities among different generations and age groups regarding educational levels. Children and young people are seen to have better educational levels than their parents and persons in the older age group. Illiteracy is much higher among parents (53.6 per cent) compare to their children (sons 23 per cent and daughter 44 per cent) in 2009. Alarming, gender discrimination is pretty strong and the prevalence of illiteracy among daughters is about twice of that among sons. The upward mobility witnessed is more prominent among the advanced castes and marginal among the excluded castes, especially for the women. Whether this is because of intergenerational stickiness will be examined next.

## **V. INTERGENERATIONAL MOBILITY**

### ***1. Transition Matrix Approach***

We are more interested in examining how children's education and occupation are related to parental standards. More specifically, we want to quantify the degree of intergenerational upward mobility in education and occupation. This would be given by the percentage of children moving to a higher educational or occupational class as compared to their parents. The cross-tabulation of children's parameters with parental parameters yields the following results.

It has been observed that substantial upward mobility is present in terms of educational attainment levels. About 48 per cent of the children in 1993 and about 56 per cent of them in 2004 have higher educational levels as compared to those of their parents (Tables 2 and 3). Whereas in 2009, 62 per cent of the children have higher educational level than their parents. Mobility is higher for the younger age group as compared to the older, and for boys as compared to girls. Mobility has also consistently improved during the period 1993-2009. The improvement in educational mobility is much more for the girls who were lagging behind. However, social disparity in educational mobility is noticeably changing over the period. Upward mobility was quite lower for the excluded classes as compared to the advanced classes in 1993 and among them mobility of schedule caste group was much lower compare to the tribes. The gap between

advanced and excluded classes has decreased in 2003, especially for the boys, but it was still significant. In 2009 the gap between excluded classes and advanced class has become almost negligible which is remarkable. This indicates that for new male entrants, the probability of reaching a higher educational standard than that of their parents is almost equal for the advanced and excluded classes. This is a welcome trend, though the gender bias is still a major issue which is more severe for the excluded groups.

## 2. *Regression Approach of Measuring Educational Mobility*

### i) **The Model**

We want to look into the factors on which child's education depends and how family background and parental influence plays the role. In the model, we have considered child's completed years of schooling as the dependent variable. Completed years of schooling of father and mother are taken as explanatory variables. To consider the impact of economic status of the family on child education we have considered a dummy variable which represent poverty status, a dichotomous variable. Those families whose monthly per capita consumption expenditure is below the planning commission stated official poverty line in terms of MPCE are considered as poor (BPL) families. As the father's occupation status is also an important determinant of both economic condition as well as social strata on which the household belongs, we include it as an explanatory variable. This is done using two dummies – one if the father has Pink collar jobs and another if the father has White collar jobs, the control group being Blue collar jobs.<sup>1</sup> Apart from these factors we hypothesise that the social background in terms of caste status also have a major role on child's educational achievement and have included caste dummy and its interaction effect with father's education in the model. The complete model looks as follows:

$$CY_{Ch} = \alpha + \beta_F CY_F + \beta_M CY_M + \theta_{F1} Occ_{F2} + \theta_{F2} Occ_{F1} + \pi Pov Dummy + \alpha_0 ST_D + \alpha_1 SC_D + \alpha_2 OBC_D + \gamma_0 CY_F * ST + \gamma_1 CY_F * SC + \gamma_2 CY_F * OBC$$

Where,  $CY_{Ch}$  = *Completed Years of Schooling of Child*

$CY_F$  = *Completed Years of Schooling of Father*

$CY_M$  = *Completed Years of Schooling of Mother*

$Occ_{F1}$  = *Occupation Group Dummy 1 of Father* (=1 if Pink collar jobs)

$Occ_{F2}$  = *Occupation Group Dummy 2 of Father* (=1 if White collar jobs)

*Pov Dummy = Poverty dummy* (=1 if poor)

$$\frac{ST_D}{SC_D} = ST \frac{SC}{OBC_D} \quad OBC \text{ Dummy}$$

The coefficients  $\beta_F$  and  $\beta_M$  represents the impact of father's and mother's education on child's education. Basically it represents stickiness, higher the value of  $\beta$ , higher is the stickiness, and less is the intergenerational mobility.  $\theta_{F1}$  and  $\theta_{F2}$  represent the impact of father's occupational status on child's education.  $\alpha_0, \alpha_1, \alpha_2$  denote the base level differences between social groups in child's education achievement. The value of the coefficient  $\pi$  represents how being poor affects child's schooling.  $\gamma_0, \gamma_1, \gamma_2$  represent the differential impacts of father education for different social groups.

## ii) Results

Table 4 gives us the results of regression analysis for the year 1993, 2004 and 2009. The value of constant term represent the base level years of schooling for the advance class/ general class. It is found that child's base level years of schooling was 3.761 in 1993 and 5.234 in 2004 and 6.735 in 2009. So it can be said that over the study period base level of educational achievement is increasing. The value of  $\beta_F$ , i.e. the impact of father's education on child is 0.433 in 1993, 0.337 in 2004 and 0.277 in 2009. All these values are significant indicating significant influence of father on child's education implying existence of stickiness. The value of such stickiness is also being observed to be lowering over the study period. It may be said that though earlier father influence has a greater role on child's education it has a declining trend. Intergenerational mobility in education may be said to be increasing over the years.

The economic status of the household also significantly affects child's years of schooling. The base school level is nearly 30-40 per cent lower for the households below poverty line compared to non-poor families in all the periods..

The coefficients of social group dummies indicate the base level difference in child's years of schooling of between advanced class and the excluded classes. In all the periods the values are significant and negative. This indicates that base level schooling is higher for the advanced class compare to the excluded classes. Among the excluded classes the base level is substantially

lower for the tribals compared to SCs and OBCs. The difference seems to have reduced marginally over the period.

The coefficients of occupation group dummies measure the difference in child's years of schooling between parents with relatively higher and lower occupational strata. In all the periods the values are significant and positive. This indicates that base level schooling is significantly higher for higher occupational group (white and pink) compared to the lower occupational group (blue colour job).

However our main focus is examining difference in intergenerational mobility across social groups. The interaction coefficients of social group dummies with father education give the difference of impact of father education across social groups. All these interaction coefficients are positive and significant indicating that the parental influence is much higher for the excluded classes compared to the advance group, i.e. stickiness is higher for the backward classes and thus mobility is less for them. It is observed that this additional stickiness for the excluded classes have been declining over time, especially for the SCs.

We have also computed index of intergenerational mobility (as the inverse of parental impact coefficient or degree of stickiness) from the regression results (Table 5).

## **VI. STRUCTURAL AND EXCHANGE MOBILITY**

### ***1. General trend***

We have earlier noted that the main focus and contribution of this paper is on decomposing observed mobility in education into that due to *Structural Mobility* and *Exchange Mobility* and compare the relative contribution of them. Using methodology already discussed earlier, Table 6a and 6b provide us the results of decomposing *Upward Mobility*.

In 1993 upward exchange mobility in education in India was 13 per cent which implies that 13 per cent of children attained higher educational status compared to their fathers whereas at the same time 13 per cent of children downgraded to lower educational status relative to their fathers. Thus 13 per cent of children had actually switched places. On the other hand 35.8 per cent children were able to achieve higher educational status relative to their fathers because of structural mobility. This structural mobility is mainly due to growth of educational infrastructure, better access to educational institutions, and expansion of education sector as a whole creating

new education opportunities across the board. The corresponding figures in 2004 and 2009 are 42.9 per cent and 50.3 per cent, rising steadily over time. The exchange mobility however has slightly declined over the same period (13.2 per cent in 2004 and 11.7 per cent in 2009). It is thus clear that most of the upward educational mobility observed in India came from structural mobility and over the period its contribution is increasing whereas the contribution of exchange mobility is lower and has a declining trend. This structural change in education sector can be attributed to higher investment in both public and private education, higher aspiration and continuous demand for higher qualification/ educational status at the time of (jobless) growth in post reform era (search for higher qualification / degree).

## **2. *Gender Dimension***

Now if we look at the gender perspective, the structural mobility figures for the boys are much higher (nearly double) than the girls in all the periods. In 1993 51.5 per cent boys experienced structural upward mobility whereas for the girls the same figure was only 16.2 per cent. This gap reduced marginally in 2009. On the other hand the exchange mobility is lower for the boys compared to girls though the difference is lesser.

It is observed that for the male children in almost all the periods the contribution of structural mobility to total mobility is much higher than exchange mobility. More than 85 per cent of educational upward mobility is due to structural mobility for the boys and only less than 15 per cent is due to exchange mobility.

Strikingly different picture is observed for the female children. In 1993 the contribution of exchange mobility and structural mobility to total mobility is almost same, whereas from 2004 onwards the contribution of structural mobility has an increasing trend. In 2009 two-third of upward mobility is due to structural change and one third is due to exchange of places for the girls.

It can be said that whatever be the reason behind larger structural movement /change in education during this period this has a strong male bias. It may be the case that new opportunity/ expansion created during this period are being captured mostly by male children. Additionally it is also due to higher male bias (both from social and parental pressure) for acquiring skill for occupational purpose.

### **3. *Social Stratification***

Among the social groups both the structural and exchange mobility is higher for advanced group compared to excluded class. The gap was higher in 1993 which reduced significantly in 2009. It is because upward mobility is higher for advanced group.

At the same time from table it is observed that in all the period the contribution of structural mobility to total upward mobility is much higher than contribution of exchange mobility among all social classes. This contribution by structural mobility is slightly higher for backward group compared to advanced group. And contribution of exchange mobility is lower for backward classes.

### **4. *Age Cohorts***

The situation of educational mobility in different age group/ cohort is also studied. It is observed that in 1993 structural upward mobility in education was 36.2 per cent for the younger age group whereas it was little lower for the old age group. On the other hand exchange mobility was 12.8 per cent for younger one and 16 per cent for the older group. In 2004 structural mobility for both younger and older group increased which is larger for older age group. Exchange mobility was only 13.3 per cent for younger age group and 8.9 per cent for older age group. In 2009 both the structural mobility is more or less similar for both age group, though the contribution and magnitude of structural mobility is much higher (50 per cent of total mobility). The same for exchange mobility is low (11 per cent) like earlier periods.

So it is observed that the contribution of structural mobility in total upward educational mobility was almost  $\frac{2}{3}^{\text{rd}}$  for the younger age group in 1993-2004 which increased to  $\frac{3}{4}^{\text{th}}$  in 2009. On the other the contribution of exchange mobility for them was only  $\frac{1}{3}^{\text{rd}}$  in 1993 -2004 which reduced to only  $\frac{1}{4}^{\text{th}}$  in 2009. For the older group in 1993 the contribution of structural mobility to total upward mobility was slightly lower compare to younger age group. But over time older age group shows similar pattern that of younger age group.

## **VII. CONCLUSION**

It is found that Educational Mobility is substantial and rising during the period of high growth in India. Mobility was much lower for marginalised groups during initial year of 1990s but has improved during last decade for the SCs. But similar trend is not observed for the STs who are much more spatially isolated. From the regression analysis we found that over time there is an

increase in base level i.e. average years of schooling is increasing. It is also found that there exists considerable persistence of parental impact, albeit with a declining trend. The economic status of the household significantly affects child education – base level education nearly 30-40 per cent lower for poor households compared to non-poor ones. Parental influences are much larger for excluded groups than advanced caste households. The contribution of structural mobility is relatively higher and is increasing indicating that most of the mobility is result of public policies and expansion of educational infrastructure along with across the board aspirations for higher educational qualifications in a period of high economic growth in post reform era (which is alleged to be a *jobless growth*). Mobility is much higher for boys, indicating that opportunity/ expansion created during this period are being captured mostly by male children, which in turn may be precipitated by strong male bias of society and household in the role of *breadwinner*. Only for the girls we observed a relatively larger share of exchange mobility as compared to structural mobility indicating greater social fluidity among them. It is thus quite clear that though intergenerational educational mobility has picked up in India, we still have scope for improving social fluidity and the position of the marginalised social classes.

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### Notes

<sup>1</sup> The Occupational categories used in NSSO and our study relates to the Indian NCO-1968 classification where workers have been divided into 10 occupational classes. Arranged in descending order of hierarchy, economic status and prestige, these are – Technical & Scientific Personnel, Professionals, Administrative, Clerical, Sales, Service, Farmers, Production related, Transport, and Labourers not elsewhere classified. We have grouped them as follows: White Collar – Technical & Scientific Personnel, Professionals, Administrative Workers; Pink Collar – Clerical, Sales, and Service workers; Blue Collar – Farmers, Production related workers, Transport, and Labourers not elsewhere classified.

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**Table 1**  
**Educational Attributes of Different Groups in India - 1993-2009 (%)**

<i>Generation Group</i>	<i>Educational Group</i>	1993				2009			
		ST	SC	OBC	GEN	ST	SC	OBC	GEN
<b>All</b>	<b>Illiterate</b>	50.1	41	NA	20.9	48.2	45.3	35.4	20.4
	<b>Literate below Pr</b>	8.2	8.4	NA	6.6	11.2	10.1	10.2	7.8
	<b>Primary Passed</b>	8.6	8.9	NA	8.4	12.3	13.9	12.8	12.5
	<b>Middle Passed</b>	15.9	19.6	NA	22.1	12.1	13.7	15.8	15.3
	<b>Secondary Passed</b>	8.0	11.2	NA	17.6	7.4	7.6	11.2	14.8
	<b>Hr Sec Passed</b>	6.4	7.6	NA	12.2	5.6	5.3	8.0	12.9
	<b>Grad &amp; above</b>	2.9	3.4	NA	12.2	3.2	4.2	6.5	16.3
<b>Parents</b>	<b>Illiterate</b>	66.3	71.3	NA	40.2	69.4	68.7	56.3	39.2
	<b>Literate below Pr</b>	15.6	13.7	NA	18.9	11.1	9.7	11.0	10.4
	<b>Primary Passed</b>	8.7	8.2	NA	14.1	8.1	8.9	11.5	12.8
	<b>Middle Passed</b>	5.3	3.3	NA	10.6	5.3	5.6	9.6	12.8
	<b>Secondary Passed</b>	2.6	2.0	NA	8.7	3.4	3.6	6.4	11.0
	<b>Hr Sec Passed</b>	0.9	0.8	NA	3	1.5	1.7	3.1	6.0
	<b>Grad &amp; above</b>	0.6	0.7	NA	4.5	1.2	1.8	2.1	7.8
<b>Sons</b>	<b>Illiterate</b>	33.7	43.5	NA	17.9	37.4	33.6	23.7	13.7
	<b>Literate below Pr</b>	12.3	12.7	NA	9.6	11.6	10.9	10.8	6.8
	<b>Primary Passed</b>	14.5	13.9	NA	12.8	14.0	16.3	13.9	11.8
	<b>Middle Passed</b>	17.2	14	NA	19.6	15.4	17.3	18.7	16.3
	<b>Secondary Passed</b>	10.6	7.7	NA	16.5	9.8	9.4	14.3	17.2
	<b>Hr Sec Passed</b>	8.2	6.0	NA	12.3	7.5	7.1	10.3	15.1
	<b>Grad &amp; above</b>	3.6	2.2	NA	11.3	4.3	5.4	8.3	19.0
<b>Daughters</b>	<b>Illiterate</b>	67.3	73	NA	42	59.3	57.7	47.7	27.6
	<b>Literate below Pr</b>	8.8	6.9	NA	9.4	10.8	9.2	9.7	8.8
	<b>Primary Passed</b>	8.3	7.8	NA	10.8	10.5	11.3	11.6	13.2
	<b>Middle Passed</b>	7.9	6.0	NA	12.9	8.8	9.9	12.7	14.3
	<b>Secondary Passed</b>	4.4	2.9	NA	10.0	4.9	5.7	8.1	12.2
	<b>Hr Sec Passed</b>	2.3	2.1	NA	6.9	3.7	3.3	5.7	10.4
	<b>Grad &amp; above</b>	1.0	1.3	NA	7.9	2.1	3.0	4.6	13.4
<b>20-40</b>	<b>Illiterate</b>	59.4	50.6	NA	29.6	40.0	36.4	27.2	14.7
	<b>Literate below Pr</b>	9.7	10.7	NA	9.7	11.3	9.7	9.4	6.8
	<b>Primary Passed</b>	10.4	11.5	NA	12.4	13.6	15.7	12.9	12.4
	<b>Middle Passed</b>	9.8	12.7	NA	16.7	15.3	17.2	18.3	16.4
	<b>Secondary Passed</b>	4.9	7.4	NA	13.2	9.0	9.1	13.4	15.8
	<b>Hr Sec Passed</b>	4.0	5.0	NA	9.3	7.2	6.8	10.6	15.9
	<b>Grad &amp; above</b>	1.8	2.2	NA	9.2	3.6	5.2	8.1	18.1
<b>40+</b>	<b>Illiterate</b>	73.9	76.7	NA	46.2	63.9	61.4	48.7	29.0
	<b>Literate below Pr</b>	12.6	8	NA	10	11.0	10.8	11.5	9.3
	<b>Primary Passed</b>	6.9	5.6	NA	11.8	9.6	10.6	12.6	12.7
	<b>Middle Passed</b>	2.5	6.5	NA	11	7.4	11.7	13.7	11.2
	<b>Secondary Passed</b>	3.2	1.8	NA	9.7	4.2	4.9	7.7	13.4
	<b>Hr Sec Passed</b>	0.1	0.6	NA	4.0	2.7	2.5	3.9	8.3
	<b>Grad &amp; above</b>	0.9	0.9	NA	7.2	2.5	2.3	3.8	13.6

*Source:* Author's calculations based on Data Sources mentioned in the text.

**Table 2**  
**Upward Educational Mobility of Different Age-Cohorts in India - 1993 (%)**

Social Group	All Age Group			20-40 Age Group			40+ Age Group		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Scheduled Caste	47.5	18.1	35.2	47.9	18.4	35.5	34.2	3.8	24.3
Scheduled Tribe	54.6	23.3	42.3	54.9	23.6	42.7	40.3	16.1	30.0
Other Backward Classes									
General/Advanced Class	62.0	35.9	51.3	61.9	36.5	51.5	66.7	17.0	47.6
Aggregate	59.8	32.7	48.8	59.8	33.3	49.0	62.3	16.2	44.5

*Source:* Author's calculations based on Data Sources mentioned in the text.

**Table 3**  
**Upward Educational Mobility of Different Age-Cohorts in India - 2009 (%)**

Social Group	All Age Group			20-40 Age Group			40+ Age Group		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
Scheduled Caste	68.6	51.8	61.7	69.4	52.4	62.4	51.0	24.0	43.8
Scheduled Tribe	70.8	47.9	60.8	70.8	48.1	60.8	71.6	35.9	61.0
Other Backward Classes	70.7	51.6	62.5	70.6	52.3	62.7	72.5	33.1	58.5
General/Advanced Class	66.3	55.8	61.8	65.7	56.2	61.6	74.4	47.5	65.6
Aggregate	68.9	52.8	62.0	68.8	53.3	62.1	70.3	38.6	59.8

*Source:* Author's calculations based on Data Sources mentioned in the text.

**Table 4**  
**Regression based Estimates of Stickiness of Child's Education**

Independent Variables ↓	1993	2004	2009
<b>Dependent variable : child's completed years of schooling</b>			
(Constant)	3.767** (2,740.2)	5.234** (3,554.8)	6.735** (4,885.0)
Father's completed years of schooling	0.433** (2,367.9)	0.337** (1,867.6)	0.277** (1,694.0)
Mother's completed years of schooling	0.313** (1,315.4)	0.282** (1,705.8)	0.220** (1,646.1)
Poverty Dummy <sup>1</sup>	-1.295** (-1,120.6)	-1.395** (-1,334.1)	-1.870** (-2,157.9)
<b>Father's Occupation<sup>2</sup></b>			
Pink Collar	0.639** (431.7)	-	0.396*** (339.5)
White Collar	0.235** (118.4)	-	0.379*** (296.5)
<b>Social Group<sup>3</sup></b>			
ST dummy	-1.533** (-681.3)	-1.460** (-660.5)	-1.077** (-530.2)
SC dummy	-0.895** (-502.6)	-1.030** (-579.7)	-1.000** (-601.9)
OBC dummy		-0.812** (-543.1)	-0.750** (-513.6)
<b>Interaction<sup>4</sup></b>			
Father's completed years of schooling * SC Dummy	0.073** (156.9)	0.093** (306.2)	0.044** (120.0)
Father's completed years of schooling * ST Dummy	0.130** (195.0)	0.114** (245.3)	0.069** (270.0)
Father's completed years of schooling * OBC Dummy		0.061** (282.7)	0.073** (377.9)
F Value	43.0X10 <sup>5</sup> **	47.6X10 <sup>5</sup> **	54.1X10 <sup>5</sup> **
Adj R Sq	.371	0.363	0.359

*Note:* Figures in parenthesis are t-values; \* and \*\* denotes significance at 10 per cent and 5 per cent levels respectively; 1 – control group Non-poor; 2 – Control Group Blue Collar Jobs; 3, 4 – Control group General/Advanced/Upper Caste.

*Source:* Author's calculations based on data sources mentioned in appendix

**Table 5**  
**Derived Mobility Index from Regression based Estimates**

<b>Social Groups</b>	<b>1993</b>	<b>2004</b>	<b>2009</b>
Advanced Class	2.3	3.0	3.6
Scheduled Caste	2.0	2.3	2.9
OBC	-	2.5	2.9
Scheduled Tribe	1.8	2.2	3.1

*Note:* Mobility Index are derived as reciprocal of degree of stickiness.

*Source:* Author's calculations based on Table 4

<b>Table 6a</b>									
<b>Decomposing Upward Mobility into Structural and Exchange Mobility - 1993</b>									
<b>Social Group</b>	<b>All Age Group</b>			<b>20-40 Age Group</b>			<b>40+ Age Group</b>		
	<b>Boys</b>	<b>Girls</b>	<b>All</b>	<b>Boys</b>	<b>Girls</b>	<b>All</b>	<b>Boys</b>	<b>Girls</b>	<b>All</b>
<i><b>Structural Mobility</b></i>									
<b>Scheduled Caste</b>	41.9	8.0	25.9	42.2	8.4	26.3	30.0	2.5	17.7
<b>Scheduled Tribe</b>	49.1	11.1	32.7	49.3	11.5	33.2	37.3	12.0	22.5
<b>Other Backward Classes</b>									
<b>General/Advanced Class</b>	52.9	17.9	37.3	52.9	18.9	37.7	58.5	3.2	30.4
<b>Aggregate</b>	51.5	16.2	35.8	51.5	17.0	36.2	54.7	2.6	28.5
<i><b>Exchange Mobility</b></i>									
<b>Scheduled Caste</b>	5.6	10.2	9.3	5.7	10.0	9.2	4.3	1.3	6.5
<b>Scheduled Tribe</b>	5.5	12.2	9.6	5.5	12.1	9.5	2.9	4.2	7.4
<b>Other Backward Classes</b>									
<b>General/Advanced Class</b>	9.1	17.9	14.0	9.1	17.6	13.8	8.2	13.8	17.1
<b>Aggregate</b>	8.3	16.5	13.0	8.3	16.2	12.8	7.6	13.6	16.0

Source: Author's calculations

<b>Table 6b</b>									
<b>Decomposing Upward Mobility into Structural and Exchange Mobility - 2009</b>									
<b>Social Group</b>	<b>All Age Group</b>			<b>20-40 Age Group</b>			<b>40+ Age Group</b>		
	<b>Boys</b>	<b>Girls</b>	<b>All</b>	<b>Boys</b>	<b>Girls</b>	<b>All</b>	<b>Boys</b>	<b>Girls</b>	<b>All</b>
<i><b>Structural Mobility</b></i>									
<b>Scheduled Caste</b>	64.4	33.9	50.7	64.2	34.2	50.6	68.3	26.2	54.0
<b>Scheduled Tribe</b>	61.5	38.8	52.2	63.0	39.6	53.3	41.6	16.7	32.6
<b>Other Backward Classes</b>	62.4	34.2	50.3	62.3	34.8	50.5	63.9	20.0	47.6
<b>General/Advanced Class</b>	56.5	39.5	49.2	55.5	39.9	48.8	68.6	30.6	56.0
<b>Aggregate</b>	60.3	36.7	50.3	60.3	37.2	50.4	61.4	21.9	48.3
<i><b>Exchange Mobility</b></i>									
<b>Scheduled Caste</b>	6.5	13.9	10.2	6.6	13.9	10.2	3.2	9.7	7.0
<b>Scheduled Tribe</b>	7.1	13.0	9.5	6.5	12.8	9.1	9.5	7.3	11.2
<b>Other Backward Classes</b>	8.3	17.4	12.2	8.3	17.5	12.3	8.6	13.1	10.9
<b>General/Advanced Class</b>	9.8	16.3	12.6	10.1	16.3	12.8	5.8	16.9	9.5
<b>Aggregate</b>	8.5	16.1	11.7	8.5	16.1	11.7	9.0	16.6	11.5

Source: Author's calculations